

ABSTRACT OF THE DISCLOSURE

There is provided a water electro system which permits easy recycling of recovered pure water. The water electrolysis system includes: an electrolyte membrane 11 sandwiched by catalyst layers 12 and 13; a water electrolysis means 1 that brings out hydrogen from one catalyst layer and brings out a gas/liquid mixture of oxygen and pure water from the other catalyst layer by electrolyzing pure water; a gas/liquid separating means 2 that separates pure water 7 from the gas/liquid mixture; and a backflow means 8 that makes the separated pure water 7 flow back to the water electrolysis means 1. The gas/liquid separating means 2 is arranged to be directly connected to a discharge opening 3 through which the gas/liquid mixture is brought out from the water electrolysis means 1, and the gas/liquid mixture flows back directly to the gas/liquid separating means 2 through the discharge opening 3. The water electrolysis system includes a purifying means 9 for purifying with the aid of ion exchange resin the pure water made to flow back by means of the backflow means 8, and makes the purified pure water flow back to the water electrolysis means 1. The purifying means 9 is arranged adjacently to the water electrolysis means 1. The gas/liquid separating means 2 comprises an intake opening 4 for mint pure water. The gas/liquid separating means 2 comprises a filter 5 for separating oxygen and pure water from each other.